

DOE NEWS

U.S. DEPARTMENT OF ENERGY • OFFICE OF PUBLIC AFFAIRS • WASHINGTON, DC 20585

NEWS MEDIA CONTACTS:

Joe Davis, 202/586-4940

Thomas Welch, 202/586-5806

FOR IMMEDIATE RELEASE

Tuesday, April 27, 2004

Energy Secretary Spencer Abraham Announces \$350 Million In Hydrogen Research Projects

DETROIT, MICH. – President George W. Bush’s Hydrogen Research Initiative took center stage in Detroit today with Secretary of Energy Spencer Abraham announcing \$350 million in nationwide funding for science and research projects to establish a hydrogen economy.

Abraham will make additional stops in Golden, Colorado and Los Angeles, California. There, he will speak to the National Hydrogen Association’s meeting.

The \$350 million represents nearly one-third of the President’s \$1.2 billion commitment in research funding to bring hydrogen and fuel cell technology from the laboratory to the showroom.

Selected through a merit-reviewed, competitive process, the projects involve 30 lead organizations and include over 100 partners. Recipients include academia, industry and DOE national laboratories. President Bush has proposed a multi-year research funding effort for program like FreedomCAR and the Hydrogen fuel initiative, to enable America to lead the world in developing clean, hydrogen-powered automobiles that would free the U.S. from dependence on foreign petroleum.

“President Bush’s Administration recognizes that a hydrogen economy has the long-term potential to deliver greater energy independence by reducing America’s dependence on foreign sources of energy,” said Energy Secretary Abraham.

“It offers immense environmental benefits that current energy technologies cannot meet. This multi-million dollar commitment to research is a down payment on a more energy and environmentally secure future.”

(MORE)

R-04-086

Key research areas include:

Hydrogen Storage

“Centers of Excellence” for exploratory research in hydrogen storage. Each center includes a DOE national laboratory lead and several university and industry partners. Responding to DOE’s “Grand Challenge” solicitation, these centers will address the major technical barrier to on-board hydrogen storage - storing enough hydrogen to enable greater than 300 mile driving range without impacting cargo or passenger space. In addition, individual universities, research institutes, and small businesses will explore new materials for hydrogen storage. The DOE share for this National Hydrogen Storage Project is \$150 million over 5 years with an additional private cost share of approximately \$20 million.

Vehicle and Infrastructure “Learning” Demonstrations

“Learning demonstrations” that will provide important data to focus research efforts. The use of hydrogen as a transportation fuel and the development of fuel-cell vehicles will require extensive research and an implementation strategy. Automakers and energy companies will work together with their teams under this project to demonstrate integrated and complete system solutions operating in real world environments. These demonstrations will assess the research program’s progress toward meeting the goal of making a commercialization decision by 2015. The expected DOE share is \$190 million over 5 years with an additional private cost share of approximately \$190 million.

Fuel Cell Research

Fuel cell research projects that address critical fuel cell cost and durability issues for consumer electronics and other applications. The DOE share is \$13 million dollars over 3 years with an additional private cost share of approximately \$10 million. These selections are in addition to the \$75 million in fuel cell awards announced by Secretary Abraham last year.

Hydrogen Education

Hydrogen technology education projects include middle school and high school curricula and teacher professional development. These projects pair hydrogen technology experts with professional educators and experienced curriculum developers to create hands-on activities and lessons to engage students in the developing hydrogen economy. Teacher professional development is an essential component, as teachers nationwide will not only learn how to use the materials but also receive the training they need to build their

(MORE)

R-04-086

expertise and enhance their ability to educate students. The hydrogen education projects also include the development of materials suitable for a general audience. These materials will help introduce the public to the hydrogen vision, as well as provide a better understanding of how fuel cells work; how hydrogen is produced, delivered, and stored; and the facts about hydrogen safety.

Secretary Abraham added, “The financial commitment of the private sector dramatically increases the probability of success that we will overcome the technology challenges in this important endeavor and achieve the President’s vision.”

Hydrogen Storage Grand Challenge

Centers of Excellence		
LANL/PNNL	SNL	NREL
Chemical Hydrogen Center	Metal Hydride Center	Carbon Center
Los Alamos National Laboratory (Los Alamos, NM)	Sandia National Laboratories (Livermore, CA)	National Renewable Energy Laboratory (Golden, CO)
Pacific Northwest National Laboratory (Richland, WA)	Stanford University (Stanford, CA)	California Institute of Technology (Pasadena, CA)
University of Pennsylvania (Philadelphia, PA)	General Electric (Niskayuna, NY)	Duke University (Durham, NC)
UCLA (Los Angeles, CA)	University of Hawaii (Honolulu, HI)	Penn State University (University Park, PA)
UC-Davis (Davis, CA)	California Institute of Technology (Pasadena, CA)	Rice University (Houston, TX)
Penn State University (University Park, PA)	Jet Propulsion Laboratory (Pasadena, CA)	University of Michigan (Ann Arbor, MI)
University of Washington (Seattle, WA)	HRL Laboratories (Malibu, CA)	University of North Carolina (Chapel Hill, NC)
University of Alabama (Tuscaloosa, AL)	University of Illinois (Champaign, IL)	University of Pennsylvania (Philadelphia, PA)
Rohm and Haas (Philadelphia, PA)	Univ. of Pittsburgh/Carnegie Mellon Univ. (Pittsburgh, PA)	Oak Ridge National Laboratory (Oak Ridge, TN)
Millennium Cell (Eatontown, NJ)	NIST (Gaithersburg, MD)	Lawrence Livermore National Laboratory (Livermore, CA)
Intematix (Moraga, CA)	University of Nevada-Reno (Reno, NV)	NIST (Gaithersburg, MD)
US Borax (Boron, CA)	Oak Ridge National Laboratory (Oak Ridge, TN)	Air Products (Allentown, PA)
	University of Utah (Salt Lake City, UT)	
	Intematix Corporation (Moraga, CA)	
	Brookhaven National Laboratory (Brookhaven, NY)	
Individual Projects		
Prime	Partners	Research Area
TIAX LLC (Cambridge, MA)	Gas Technology Institute (IL)	Lifecycle and cost analysis

	Yale University (CT) University of Oklahoma (OK)	
University of Missouri (St. Louis, MO)	Pacific Northwest National Laboratory (WA)	New materials
University of Connecticut (Storrs, CT)	Pacific Northwest National Laboratory (WA)	New materials
Michigan Technological University (Houghton, MI)	None	Chemical hydrides
Gas Technology Institute (2 projects) (Chicago, IL)	Superior Graphite Co. (IL) NEXGEN Fueling (MN)	Carbon Off-board storage
Alfred University (Alfred, NY)	Savannah River Technology Center (SC) Mo-Sci Corporation (MO) CERALINK (NY)	New processes
Carnegie Institute of Washington (Washington, DC)	None	New materials
Research Triangle Institute (Research Triangle Park, NC)	State Scientific Research Institute (Moscow, Russia) ATK/Thiokol Propulsion (UT)	Chemical hydrides
State University of New York (Syracuse, NY)	PoroGen, LLC (MA)	Carbon
TOFTEC, Inc. (Gainesville, FL)	University of Florida, Gainesville (FL)	New processes
University of Michigan (Ann Arbor, MI)	Northwestern University (IL) Los Alamos National Laboratory (NM)	New materials
University of Pennsylvania (Philadelphia, PA)	Drexel University (PA) NIST (MD)	Carbon
University of California-Berkeley (Berkeley, CA)	Lawrence Berkeley National Laboratory (CA)	New materials
University of California-Santa Barbara (Santa Barbara, CA)	Los Alamos National Laboratory (NM)	New materials

Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project

Energy and Automotive Company Partners	Additional team members
Air Products and Chemicals, Inc. (Prime) (Allentown, PA)	
- Toyota Motor Sales (Torrance, CA)	UTC Fuel Cells (South Windsor, CT)
- Nissan North America (Gardena, CA)	Proton Energy Systems (Wallingford, CT)
- American Honda Motors (Marysville, OH)	University of California, Davis (Davis, CA)
- ConocoPhillips (Bartlesville, OK)	Southern California Edison (Rosemead, CA)
- BMW (Woodcliff Lake, NJ)	California Energy Commission (Sacramento, CA)
	California Air Resources Board (Sacramento, CA)
	South Coast Air Quality Management District (Diamond Bar, CA)

	Sacramento Metropolitan Air Quality Management District (Sacramento, CA)
DaimlerChrysler Corp. (Prime) (Auburn Hills, MI)	
- BP America (Warrenville, IL)	DTE Energy (Detroit, MI)
	SAIC (San Diego, CA)
	SRI International (Palo Alto, CA)
	Ballard (Vancouver, BC)
	NextEnergy (Detroit, MI)
	California Fuel Cell Partnership (Sacramento, CA)
	National Hydrogen Association (Washington DC)
Ford Motor Co. (Prime) (Dearborn, MI)	
- BP America (Warrenville, IL)	Ballard (Vancouver, BC)
	NextEnergy (Detroit, MI)
	Environmental Protection Agency (Ann Arbor, MI)
	H2 Systems
	Sacramento Municipal Utility District (Sacramento, CA)
	California Energy Commission (Sacramento, CA)
	California Air Resources Board (Sacramento, CA)
	Progress Energy (Orlando, FL)
General Motors Corp. (Prime) (Warren, MI)	
- Shell Oil Products (Houston, TX)	Air Products and Chemicals, Inc. (Allentown, PA)
	Praxair (Tonawanda, NY)
	GE Global Research (Niskayuna, NY)
	NextEnergy (Detroit, MI)
	Viewpoint Systems, Inc. (NY)
	Strat@comm Inc. (Washington DC)
	Department of the Army (Ft. Belvoir, VA)
	Port of Los Angeles (Los Angeles, CA)
	Maryland Energy Office (Annapolis, MD)
	New York State Energy Research and Development Authority (Albany, NY)
Texaco Energy Systems LLC (Prime) (Houston, TX)	
- Hyundai Motor Co. (Chino, CA)	UTC Fuel Cells (South Windsor, CT)
	University of California, Davis (Davis, CA)
	AC Transit (Oakland, CA)

	Southern California Edison (Rosemead, CA)
	South Coast Air Quality Management District (Diamond Bar, CA)
	California Energy Commission (Sacramento, CA)
	California Air Resources Board (Sacramento, CA)
	New York State Electric and Gas/Rochester Gas and Electric (Apalachin, NY)

Fuel Cell Research Projects

Prime	Sub-contractors
Fuel Cells for Consumer Electronics Devices	
Poly Fuel Inc. (Mountain View, CA)	Intel Corporation (Santa Clara, CA)
MTI MicroFuel Cells Inc. (Albany, NY)	Flextronics (San Jose, CA)
	Methanol Foundation (Washington DC)
	Dupont Fuel Cells (Wilmington, DE)
Fuel Cells for Auxiliary Power Generation	
Cummins Power Generation (Minneapolis, MN)	International Truck & Engine Corporation (Fort Wayne, IN)
	SOFC Holding LLC (Alliance, OH)
Delphi Automotive Systems, LLC (Troy, MI)	Volvo Trucks North America (Greensboro, NC)
	PACCAR (Mount Vernon, WA)
	Electricore, Inc. (Indianapolis, IN)
Off-Road Fuel Cell Applications	
Ida Tech, LLC (Bend, OR)	Donaldson Company (Bloomington, MN)
	The Toro Company (Bloomington, MN)
	University California, Davis (Cavis, CA)
	3M Company (St. Paul, MN)

Hydrogen Education Development

Prime	Partners	Project
University of California, Berkeley (Center for Curriculum Innovation of the Lawrence Hall of Science)	Schatz Energy Research Center at Humboldt State University; Chabot Space and Science Center; Alameda-Contra Costa Transit; Lab-Aids, Inc.; National Hydrogen Association	Curricula and teacher professional development
National Energy Education Development (NEED) Project	Sentech, Inc; Los Alamos National Laboratory; National Association of State Energy Officials; National Hydrogen Association; U.S. Fuel Cell	Curricula and teacher professional development

	Council	
Andersen Creative Group	Argonne National Laboratory, NuZoo Media, Inc.	Educational materials
Energy International, Inc.	H2Nation, Breakthrough Technologies, Inc.	Educational materials

- DOE -

R-04-086